Brainstorming

What is it ?

Brainstorming is a relatively simple and cheap way of generating ideas. Although it can be done individually, it usually involves a group of people who are looking to generate ideas that will provide a solution to a problem or situation. The aim is to generate as many ideas as possible that can then be evaluated at a later date.

How can it be used ?

It is a technique that can be used in almost any situation where solutions to a problem and new ideas are required and can be used with a small or large group of people. The most effective and rewarding brainstorming sessions are those where there are as few rules, inhibitions and boundaries as possible. It is usual to appoint a group leader who is responsible for controlling the brainstorming session. They can then be responsible for recording the thoughts and ideas which are simply written up on a wall, flip chart or blackboard for all to see. It is suggested that an effective brainstorming session should last for no more than 30 - 40 minutes. Once the session has been completed, thought can then be given to selecting ideas to move forward for further consideration and evaluation. Criteria that can be used for selection may include :

- Financial
- Timescales
- Available personnel
- Other priorities

Edward De Bono suggests considering first, those items that appear to be useful immediately, second, those items for further exploration and finally, new concepts.

Advantages and Disadvantages

Brainstorming has many benefits and advantages that include :

- You don't have to be a highly qualified expert or highly paid consultant to use it
- Easy to understand - it's not a complicated technique
- It is inexpensive
- If controlled properly it is a quick way of generating ideas
- Encourages creative thinking and thinking "out of the box"
- Generates ideas and solutions that can be used elsewhere
- Provides an opportunity for widespread participation and involvement

The benefits and advantages outweigh any disadvantages. However, if we are to consider disadvantages, they may include:

- Can take too much time if the group is not properly controlled and is allowed to run for too long
- Raising expectations of the brainstorming group by considering ideas that will never be implemented

Brainstorming

How often have you used brainstorming to solve a problem? Chances are, you've used it at least once, even if you didn't realize it.

For decades, people have used brainstorming to generate ideas, and to come up with creative solutions to problems. However, you need to use brainstorming correctly for it to be fully effective.

In this article, we'll look at brainstorming: what it is, why it's useful, and how to get the best from it.

What is Brainstorming?

Madison Avenue advertising executive Alex Osborn developed the original approach to brainstorming and published it in his 1953 book, "Applied Imagination." Since then, researchers have made many improvements to his original technique.

The approach described here takes this research into account, so it's subtly different from Osborn's approach.

Brainstorming combines a relaxed, informal approach to problem solving with lateral thinking. It encourages people to come up with thoughts and ideas that can, at first, seem a bit crazy. Some of these ideas can be crafted into original, creative solutions to a problem, while others can spark even more ideas. This helps to get people unstuck by "jolting" them out of their normal ways of thinking.

Therefore, during brainstorming sessions, people should avoid criticizing or rewarding ideas. You're trying to open up possibilities and break down incorrect assumptions about the problem's limits. Judgment and analysis at this stage stunts idea generation and limit creativity.

Evaluate ideas at the end of the brainstorming session – this is the time to explore solutions further, using conventional approaches.

Why Use Brainstorming?

Conventional group problem solving can often be undermined by unhelpful group behavior . And while it's important to start with a structured, analytical process when solving problems, this can lead a group to develop limited and unimaginative ideas.

By contrast, brainstorming provides a free and open environment that encourages everyone to participate. Quirky ideas are welcomed and built upon, and all participants are encouraged to contribute fully, helping them develop a rich array of creative solutions.

When used during problem solving, brainstorming brings team members' diverse experience into play. It increases the richness of ideas explored, which means that you can often find better solutions to the problems that you face.

It can also help you get buy-in from team members for the solution chosen – after all, they're likely to be more committed to an approach if they were involved in developing it. What's more, because brainstorming is fun, it helps team members bond, as they solve problems in a positive, rewarding environment.

While brainstorming can be effective, it's important to approach it with an open mind and a spirit of non-judgment. If you don't do this, people "clam up," the number and quality of ideas plummets, and morale can suffer.

Individual Brainstorming

While group brainstorming is often more effective at generating ideas than normal group problem solving, several studies have shown that individual brainstorming produces more – and often better – ideas than group brainstorming.

This can occur because groups aren't always strict in following the rules of brainstorming, and bad behaviors creep in. Mostly, though, this happens because people pay so much attention to other people that they don't generate ideas of their own – or they forget these ideas while they wait for their turn to speak. This is called "blocking."

When you brainstorm on your own, you don't have to worry about other people's egos or opinions, and you can be freer and more creative. For example, you might find that an idea you'd hesitate to bring up in a group develops into something special when you explore it on your own.

However, you may not develop ideas as fully when you brainstorm on your own, because you don't have the wider experience of other group members to draw on.

Tip:

To get the most out of your individual brainstorming session, choose a comfortable place to sit and think. Minimize distractions so that you can focus on the problem at hand, and consider using Mind Maps to arrange and develop ideas.

Individual brainstorming is most effective when you need to solve a simple problem, generate a list of ideas, or focus on a broad issue. Group brainstorming is often more effective for solving complex problems.

Group Brainstorming

With group brainstorming, you can take advantage of the full experience and creativity of all team members. When one member gets stuck with an idea, another member's creativity and experience can take the idea to the next stage. You can develop ideas in greater depth with group brainstorming than you can with individual brainstorming.

Another advantage of group brainstorming is that it helps everyone feel that they've contributed to the solution, and it reminds people that others have creative ideas to offer. Brainstorming is also fun, so it can be great for team building!

Group brainstorming can be risky for individuals. Unusual suggestions may appear to lack value at first sight – this is where you need to chair sessions tightly, so that the group doesn't crush these ideas and stifle creativity.

Where possible, brainstorming participants should come from a wide range of disciplines. This cross-section of experience can make the session more creative. However, don't make the group too big: as with other types of teamwork, groups of five to seven people are usually most effective.

How to Use the Tool

You often get the best results by combining individual and group brainstorming, and by managing the process according to the "rules" below. By doing this, you can get people to focus on the issue without interruption, you maximize the number of ideas that you can generate, and you get that great feeling of team bonding that comes with a well-run brainstorming session!

To run a group brainstorming session effectively, follow these steps.

Step 1: Prepare the Group

First, set up a **comfortable meeting environment** for the session. Make sure that the room is well-lit and that you have the tools, resources, and refreshments that you need.

How much information or preparation does your team need in order to brainstorm solutions to your problem? Remember that prep is important, but too much can limit – or even destroy – the freewheeling nature of a brainstorming session.

Consider who will attend the meeting. A room full of like-minded people won't generate as many creative ideas as a diverse group, so try to include people from a wide range of disciplines, and include people who have a variety of different thinking styles.

When everyone is gathered, appoint one person to record the ideas that come from the session. This person shouldn't necessarily be the team manager – it's hard to record and contribute at the same time. Post notes where everyone can see them, such as on flip charts or whiteboards; or use a computer with a data projector.

If people aren't used to working together, consider using an appropriate warm-up exercise, or an **Icebreaker** .

Step 2: Present the Problem

Clearly define the problem that you want to solve, and lay out any criteria that you must meet. Make it clear that that the meeting's objective is to generate as many ideas as possible.

Give people plenty of quiet time at the start of the session to write down as many of their own ideas as they can. Then, ask them to share their ideas, while giving everyone a fair opportunity to contribute.

Step 3: Guide the Discussion

Once everyone has shared their ideas, start a group discussion to develop other people's ideas, and use them to create new ideas. Building on others' ideas is one of the most valuable aspects of group brainstorming.

Encourage everyone to contribute and to develop ideas, including the quietest people, and discourage anyone from criticizing ideas.

As the group facilitator, you should share ideas if you have them, but spend your time and energy supporting your team and guiding the discussion. Stick to one conversation at a time, and refocus the group if people become sidetracked.

Although you're guiding the discussion, remember to let everyone have fun while brainstorming. Welcome creativity, and encourage your team to come up with as many ideas as possible, regardless of whether they're practical or impractical. Use thought experiments such as **Provocation** or **Random Input** to generate some unexpected ideas.

Don't follow one train of thought for too long. Make sure that you generate a good number of different ideas, and explore individual ideas in detail. If a team member needs to "tune out" to explore an idea alone, allow them the freedom to do this.

Also, if the brainstorming session is lengthy, take plenty of breaks so that people can continue to concentrate.

Taking Your Brainstorming Further

If you're not getting enough good quality ideas, try using the approaches below to increase the number of ideas that you generate:

- **The Stepladder Technique** – This improves the contribution of quieter group members by introducing one person at a time.
- **Brainwriting** – This is a written approach that you can use to encourage all individuals to generate and develop ideas.
- **Online Brainstorming (also known as Brain-netting)** – An electronic method of brainstorming, this uses a document stored on a central server, or on a Cloud-based system.
- **Crawford's Slip Writing Approach** – You can use this approach to get plenty of ideas from all participants, and to get a view of each idea's popularity.

These techniques help you in specific brainstorming situations:

- **Reverse Brainstorming** – This is used to improve a product or service.
- **Starbursting** – Starbursting helps you develop questions that you need to ask to evaluate a proposal.
- **Charette Procedure** – This helps you brainstorm with large groups of people. (Conventional brainstorming becomes increasingly ineffective when more than 10 or 12 people are involved.)
- **Round-Robin Brainstorming** – You can use this approach to get people to contribute ideas without being influenced by others.
- **Rolestorming** – This technique encourages group members to take on other people's identities while brainstorming, thereby reducing their inhibitions.

The Next Step – Taking Action

After your individual or group brainstorming session, you'll have a lot of ideas. Although it might seem hard to sort through these ideas to find the best ones, analyzing these ideas is an important next step, and you can use several tools to do this.

Use **Affinity Diagrams** to organize ideas and find common themes.

Grid Analysis and **Paired Comparison Analysis** will help you choose between different options. You can also use the **Six Thinking Hats** technique to look at ideas from different

perspectives; and **Nominal Group Technique** and **Multi-Voting** can help you choose between options as a team, particularly where the differences between options are quite subjective.

Key Points

When managed well, brainstorming can help you generate radical solutions to problems. Brainstorming can also encourage people to commit to solutions, because they have provided input and played a role in developing them.

The best approach to brainstorming combines individual and group brainstorming. During the brainstorming proc

Brainstorming Rules

Effective brainstorming can be accomplished by following simple brainstorming do's and don'ts with your team. A brainstorming session is a tool for generating as many ideas or solutions as possible to a problem or issue. It is not a tool for determining the best solution to a problem or issue.

Before beginning any effective brainstorming session, ground rules must be set. This does not mean that boundaries are set so tightly that you can't have fun or be creative. It does mean that a code of conduct for person to person interactions has been set. It's when this code of conduct is breached that people stop being creative.

The best way to have meaningful groundrules is to have the team create their own. Try performing a mini-brainstorming session around creating brainstorming groundrules. It should provide a nice opportunity to practice the skills necessary for an effective brainstorming session. This also allows the team to take ownership of acceptable and unacceptable behaviors. Only if the team hasn't addressed the key groundrules should you (as the facilitator) add to the list. Once the groundrules list is generated, be sure to gain consensus that the session will be conducted according to them, and post them in a highly visible location in the room.

With that, here are four key groundrules that are useful when conducting a brainstorming session:

1. There are no dumb ideas. Period. It is a brainstorming session, not a serious matter that requires only serious solutions. Remember, this is one of the more fun tools of quality, so keep the entire team involved!

2. Don't criticize other people's ideas. This is not a debate, discussion or forum for one person to display superiority over another.

3. Build on other people's ideas. Often an idea suggested by one person can trigger a bigger and/or better idea by another person. Or a variation of an idea on the board could be the next "velcro" idea. It is this building of ideas that leads to out of the box thinking and fantastic ideas.

4. Reverse the thought of "quality over quantity." Here we want quantity; the more creative ideas the better. As a facilitator, you can even make it a challenge to come up with as many ideas as possible and compare this team's performance to the last brainstorming session you conducted.

Other brainstorming preparation questions:

- Who will lead or facilitate the brainstorming session?
- Who will participate in the brainstorming session?
- Who can write very quickly to record the brainstormed ideas without slowing down the group?
- Where will the brainstorming session be held?
- What materials are needed for brainstorming (easel, paper, white board, pens, etc.)?
- What is my brainstorming session desired outcome?

Brainstorming Rules

For a brainstorming session to be successful, some ground rules should be set and followed by the group , when we say ground rules here we do not mean putting any restrictions on the solutions the group can imagine. the main goal is to give them the freedom to suggest new creative and effective solution but to focus on one area at a time and help keep the group's focus , some ground rules are :

✓ Suspend Judgments : The first and most important ground rule for brainstorming is to suspend all judgments, there is no such thing as a bad idea. Ask the group to leave their judges outside the door before they enter into the brainstorming session and they shouldn't worry , they can pick them back on their way out. Give each idea its time and space the quickest way to kill creativity is to shut down ideas with comments like " that won't work" or " That's not what we're looking for" or " this too crazy".

✓ Focus on one topic at a time: Ask them to choose a topic from the list and focus their conversation on that point until they're ready to move on. This technique helps prevent them from jumping around from topic to topic.

✓ Set time limits: Some of the best ideas come when people are pressed for time.. Keep the brainstorming short, and then spend quality time refining the ideas. stick to the time limits

✓ Quantity not Quality of ideas: The Quantity of ideas is what matters during the brainstorming phase not the quality, the goal from brainstorming is to generate as many ideas as possible, evaluating each one takes place during further steps or applying other tools like SCAMPER Brainstormed results as one method. Generate as many ideas as possible before weighing and evaluating a single one.

✓ Create a parking lot: If one of the parties has an idea for a different agenda item, quickly jot it down next to that topic call it the parking lot , if someone think of something they need to check out or want to add another topic for discussion, into the parking lot it goes.

✓ Cross fertilize : Picking up ideas from other people and suggest others leading from them. someone may say a word that would spark an idea in someone else's head.

Specific Objective #2: Demonstrate a variety of advanced brainstorming techniques.

CONTENT:	METHODOLOGY:

The term **brainstorming** has gained common usage in the English language as a generic term for creative thinking. The concept of **brainstorming** is a generating of ideas in a group situation based on the principle of suspending judgment—a principle which scientific research has proved to be highly productive in individual as well as group effort. The generation phase is separate from the judgment phase of thinking.

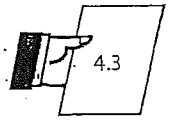
There are many variants of brainstorming, although the basic rules are the same.

- Classic Brainstorming: The purpose is to bring out as many ideas as possible, as quickly as possible, without censoring them.
- Rawlinson Brainstorming: The facilitator describes the problem and then tells ways s/he has used to solve the problem that have failed. The facilitator then asks Px to offer other solutions.
- Imaginary Brainstorming: Brainstorm imaginary solutions to an imaginary problem and then apply these solutions back to the real problem.
- Trigger Brainstorming: Define the problem and have each Px write down a list of solutions. Have the first Px read his or her list of solutions and then pass the list to the next person. Have the next person add any solutions on his or her paper that were

Learning Exercise (30 min.):

The trainer should:

- Ask Px how many of them have used brainstorming in training.
- Ask 1 Px to explain brainstorming. Be sure that s/he emphasizes that in brainstorming, every idea offered by Px is accepted and written down. Any processing of the ideas should come after the brainstorming has ended.
- Pass out *Px Handout 4.3: Brain Writing 6-3-5* .Explain how brain writing 6-3-5 is done and that the problem statement for this exercise will be to "Think of how many ways there are to use a paper clip." Ask Px write 3 ideas on the top row of the handout in a complete and concise sentence (6-10 words). At the end of 5 minutes (or when everyone has finished writing), they should pass the worksheet to the person on their right. They should then add 3 more ideas to the new sheet they have been given. Continue the process until several lines have been completed. Explain that the name Brain writing 6-3-5 comes from the process of having 6 people write 3 ideas in 5 minutes. When this is done, a total of 108 ideas will be generated.



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not already mentioned and then pass the paper to the next person. The idea is that one person's list will "trigger" new ideas for the next person.

There are several variations of trigger brainstorming. One variation is using "idea cards." Each person, using Post-it notes or small cards, writes down ideas, and places them next to the person on his or her right. Each person draws a card from their neighbor's pile as needed for inspiration. When a person draws a card, he or she adds a new idea to the card and passes it along.

A second variation is the "brainstorming pool," where each person, using Post-it notes or small cards, writes down ideas and places them in the centre of the table. Everyone is free to pull out 1 or more of these ideas for inspiration. Team members can create new ideas, variations or add on existing ideas.

- Brain Writing 6-3-5: Each person is given a worksheet with a problem statement on the top. Each person writes 3 solutions on the first line of the matrix and passes their worksheet to the person on their right. Each person adds 3 more ideas to the new sheet and passes it on. If 6 people fill out the worksheets there will be a total of 108 ideas generated by the end of the process.
- Negative (or Reverse) Brainstorming: This requires a significant level of effort analyzing a final short-list of existing ideas. Examining possible failures works very well when an idea is very new or very difficult to implement. Negative brainstorming consists of a conventional brainstorming session that is applied to

METHODOLOGY: CONTINUED

Group Work (1 hour):

- Using either colored slips of paper or candy with different wrappers, assign Px to 3 different groups.
- Assign each group a brainstorming method (Rawlinson, Imaginary, or Negative Brainstorming).
- Give each group 15 minutes to prepare their assigned brainstorming technique to demonstrate to the class.
- Ask each group to carry out their brainstorming exercise.
- Process the activity by discussing the following questions:
  - *What type of brainstorming was being demonstrated?*
  - *When might it be appropriate to use each type of brainstorming technique and with what type of Px?*
  - *Is there a situation when some of these techniques would not be appropriate or would not work well?*
- Summarize by saying that these brainstorming exercises are supposed to assist the trainer, not make training activities more complicated or use up precious training time.

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METHODOLOGY: CONTINUED

questions such as, "What could go wrong with this project?" For example, clinic staff would like to increase the number of clients coming to their clinic. They have brainstormed a long list of ideas and then discarded many. Now they are down to only a few good ideas they might like to try. They use "negative brainstorming" to identify what might go wrong with each of these ideas.

Specific Objective #3: Demonstrate how to develop a case study.

CONTENT:	METHODOLOGY:

What is a Case Study?

A case study is a training method that refers to a realistic account of a problem and how it is handled. It uses problem solving to reinforce Px' knowledge. Like other experiential learning activities, it enhances retention, recall, and the application of knowledge to real situations. The primary advantage of a case study is that it focuses on a real situation.

Two Types of Case Study

1. Full Information: In this type of case study all of the relevant information for preparing the case study is given at the beginning.
2. Incremental: Here, the information is given in stages. When the Px finishes 1 section of the case study, the section is discussed thoroughly before moving on to the next section.

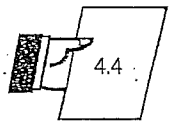
Advantages of the Case Study as a Training Method

- It is participatory and encourages Px interaction.
- Case studies use realistic and relevant cases that relate directly to Px' work.
- Px learn that there may be different perspectives or solutions to the problems presented in the case study.

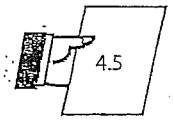
Presentation and Group Work: (3 hours)

The trainer should:

- Introduce the activity by reviewing what a case study is.
- Brainstorm guidelines for writing case studies.
- Complete any content they may have missed.
- Hand out *Px Handout 4.4: Case Study.*



- Divide Px into 3 groups. Allow 1 hour for each group to develop a case study, following the guidelines. Ask Px to put the key points from the case study on a flip chart.
- While the Px are working, pass out *Px Handout 4.5: Checklist for Case Studies.* Give each person 2 copies of the checklist explaining that when they present, they will be evaluated using the checklist.



- Reconvene the group. Ask Px to evaluate each case study using the checklist.
- Allow 10 minutes for each group to present their work and another 20-30 minutes to discuss each case study. Include checklist results as part of the discussion.
- Ask Px what steps they would go through to use case studies in their

Specific Objective #4: Demonstrate the technique of mind mapping.

CONTENT:	METHODOLOGY:

What is Mind Mapping?

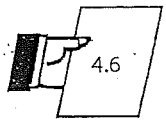
Mind mapping is a form of brainstorming. Just like regular brainstorming, the purpose is to generate as many ideas as possible without worrying about the quality of the ideas. The difference is that in this form of brainstorming, the ideas are mapped out, rather than written in linear fashion. There are several ways to do mind mapping.

1. Put two large pieces of flip chart paper together to form a square. You will need a large space to write on.
2. Write the problem in the center and draw a circle around it.
3. Identify the major components of the problem by brainstorming, and write each of these on a line coming out of the circle like the spokes on a wheel.
4. As the brainstorming about each of these major components continues and becomes more detailed, draw branches off of these lines to record the details.
5. If you want, add images next to your main line that illustrate what each line means to you. (Some people think better with pictures, others with words).

Lecturette (15 min.):

The trainer should:

- Ask Px if they have ever used mind mapping.
- Distribute *Px Handout 4.6: Mind Mapping*.

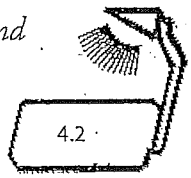


- Give a brief lecture on uses of mind maps and the advantages of using a methodology that does not use linear notes and steps. Use the mind mapping technique to conduct the lecture.

Lecturette (15 min.):

The trainer should:

- Use *Transparency 4.2: Tips for Mind Mapping* to outline tips for mind mapping.



- Ask Px if they have questions.

Skills Practice (45 min.):

The trainer should:

- Divide Px into pairs. Provide each pair with a sheet of flip chart paper. Ask each pair to choose a topic and use mind mapping to explain their topic.
- Allow Px 30 minutes to develop their mind maps. When they have completed their mind maps, ask them

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METHODOLOGY: CONTINUED

- You can do the brainstorming very systematically from the center outward, one spoke at a time, or jump from place to place as ideas develop. Ideas that are linked should be recorded off of the same line or near each other.

2. Another form of mind mapping works well when you have 2 main components, such as the advantages and disadvantages of something. In this form of mind mapping the shape of a tree is used with the main topic as the trunk and the 2 main branches as the advantages and disadvantages. It can also be used to map out more than 2 major components, but the space is more limited because of the shape of the tree.

Tips for Mind Mapping

- Use just key words, or where possible, images.
- Start from the center of the page and work out, or from the bottom up if you are using a tree.
- Make the center a clear and strong visual image that depicts the general theme of the map.
- Underline or highlight the things you want to stand out.
- Leave lots of space.
- Create sub-centers for sub-themes.
- Put key words on lines.
- Print rather than write in script.

to post their mind maps on the wall.

- When everyone has finished, conduct a tour of the mind maps.
- Ask for questions.
- Summarize by reiterating the uses of mind mapping.

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- Anything that stands out on the page will stand out in your mind.
- Use arrows, icons, or other visual aids to show links between different elements.
- Don't get stuck in 1 area. If you can't think of anything else in an area, move on to another.
- Put ideas down as they occur, wherever they fit. Don't judge or hold back.
- Be creative. Creativity aids memory.
- Get involved. Have fun.

Uses of Mind Maps

- Notes.
- Recall.
- Creativity.
- Problem-solving.
- Planning.
- Presentations.

Advantages of Mind Maps

- Mind maps work the way the brain works—which is not in nice neat lines.
- Memory and creativity are naturally associative, not linear. Any idea probably has thousands of links in your mind. Mind maps allow associations and links to be recorded and reinforced.
- The mind remembers key words and images, not sentences—try recalling just 1 sentence from memory!

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METHODOLOGY: CONTINUED

Mind maps use just key words and key images, allowing a lot more information to be put on a page.

- Because mind maps are more visual and show associations between key words, they are much easier to recall than linear notes.
- Starting from the center of the page rather than top-left corner allows you to work out in all directions.
- The organization of a mind map reflects the way your own brain organizes ideas.
- Mind maps are easy to review. Regular review reinforces memory.
- We remember what stands out. The way mind maps are laid out allows you to make key points stand out easily.